

AD-A037 327

NAVAL HEALTH RESEARCH CENTER SAN DIEGO CALIF
CHARACTERISTICS OF NAVAL RECRUITS RELATED TO READING IMPROVEMEN--ETC(U)
AUG 73 A HOIBERG, C J HYSHAM, N H BERRY
73-60

F/6 5/9

UNCLASSIFIED

NL

OF |
AD
A037327



END

DATE
FILMED
4-77

ADA037327

CHARACTERISTICS OF NAVAL RECRUITS RELATED
TO READING IMPROVEMENT

A. HOIBERG

C. J. HYSHAM

N. H. BERRY

MICHAEL FOSTER

COPY AVAILABLE TO DDG DOES NOT
PERMIT FULLY LEGIBLE PRODUCTION

See 1473
in back



REPORT NO. 73-60

AD No. _____
DDC FILE COPY,



DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

NAVAL HEALTH RESEARCH CENTER

SAN DIEGO, CALIFORNIA 92152

NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND

BETHESDA, MARYLAND

This reproduction contains some illegible pages. It is the
best that can be obtained from the copy furnished to DDG.

BEST AVAILABLE COPY

CHARACTERISTICS OF NAVAL RECRUITS RELATED TO READING IMPROVEMENT

Anne Hoiberg, C. J. Hysham, N. H. Berry, and Michael Foster

Navy Medical Neuropsychiatric Research Unit

San Diego, California 92152

During the last twenty-five years, military, governmental, and industrial personnel managers, as well as educators and parents, have been increasingly concerned about the reading deficiencies of many young people and the damaging effects of these problems upon individuals. The difficulties encountered by individuals with reading problems are far-reaching in that they range from the reading disability itself, through feelings of failures, frustration, and hopelessness within most learning settings, to the frequent inability to fulfill requirements for employment in even the most menial of jobs. An improvement in reading skills could reap a many-faceted reward; the individual's reading abilities would be increased, his self-esteem and self-confidence would be enhanced, and his potential within society could be more readily utilized.

Researchers in the area of learning difficulties have reported that reading deficiencies are quite prevalent in our society. Hunter and Lewis (1973) have defined a reading problem in their study as one in which the disparity between the achieved reading level and the expected age-grade level was at least one full year or more. According to Gillingham (in Cordero, 1972) 10 to 20 percent of this nation's school population have reading problems. Other estimates of the incidence of this problem range from four to 35 percent of our young people.

With concern for reading skills being voiced from all levels of society, reading clinics, tutorial projects, mobile reading laboratories, enrichment programs, and special classes have been established. In 1965, the Federal government authorized unprecedented amount of funds to help institute special reading programs

ACCESSION NO.	RTS	UNANNOUNCED	JUSTIFICATION	BY	DIST. BY	DATE	AVAIL.

for the economically disadvantaged. Research upon the effectiveness of these reading improvement projects has emphasized the importance of early diagnosis, small study groups, individualized programs, and concentrated courses of treatment. According to Pearlman and Pearlman (1970), an intensive remedial program produced an average gain of three months reading ability for each month in the program for 545 elementary school children. However, two months gain for each month of remedial training is considered a very good rate of progress (Deighton, 1971).

A number of researchers have studied the relationship of biographical variables and grade level with reading improvement. In his study of elementary school children in a reading program, Bluestein (1967) studied 28 different variables in predicting reading improvement. Results of his study indicated that the best predictors of reading improvement were scores for reading and arithmetic achievement. According to Safer and Allen (1973), the best predictor of reading improvement was IQ. In studying the time of placement into a reading program, Carter and McGinnis (1970) have suggested that if school personnel can identify and provide adequate treatment for problem readers no later than the third grade, there is a 70 to 80 percent chance of success in bringing the child up to average reading ability. If treatment is delayed until the seventh grade, the chance of success drops to 30 percent, and if a reading program is initiated during grades nine to twelve, success is more difficult to attain since the student's intense feelings of failure and inadequacy as well as the reading problem must be treated.

The Navy has also become concerned with the problems of the poor reader. A highly complex and sophisticated organization, such as the Navy, must rely upon men who exhibit common sense, make intelligent decisions, and read with a high degree of understanding. Navy school curricula are designed to teach the skills needed to operate, maintain, and improve the Navy's vast array of hardware. Even though the young men enlisted into the Navy have satisfactorially fulfilled

eligibility requirements, some of these enlistees have reading problems which could hinder their effectiveness and overall worth as sailors. Research findings, however, indicate that chances of success in any reading program for these men are remote. In addition, since poor readers are likely to exhibit emotional difficulties (Thompson, 1966; Hunt and Wittson, 1951), sailors with these problems might be inclined to spend more time at sick call, in hospitals, being detained by police, and in consultation with chaplains and counselors. Reading skills are also essential if a sailor hopes to advance; he is required to complete correspondence courses and write advancement examinations.

In light of national concern and in an effort to raise the literacy of the naval enlistee who has difficulty absorbing military training because of a reading disability, the Academic Remedial Training Division (ART) was established in 1967 at the Naval Training Center, San Diego, California. If a recruit is unable to pass his academic test during the third week of training, he is sent to ART for an assessment of his reading skills. Several factors, such as reading level, intelligence, and his attitude toward reading, are considered before admitting the recruit to the program. His reading level, as measured on the Gates-MacGinitie Reading Test, is usually between the second and fifth grade levels. For most of these recruits assigned to ART, the reading program offers the opportunity for these men to remain in the Navy; without the school many of these men would be discharged from the Navy. The goal of this remedial program is to raise the reading level to, at least the fifth grade and to create an interest in reading which will help the recruit become a more effective sailor.

The academic remedial program consists of a five-week curriculum of classroom and individual instruction. The first week is devoted to twenty-five hours of classroom instruction in phonics, a class which is considered essential by the eight instructors. The phonics instruction is designed to help the recruit

"sound out" approximately 65 percent of the words he will encounter in his reading. The second and third weeks of the program emphasize the skills learned in phonics and the principles of comprehension, grammar, and vocabulary development are taught. In addition, he is helped to increase his reading speed through the use of controlled reading, pacers, and timed tests. The recruits are tested daily to help desensitize them to the testing situation. Failure to attain 75 percent on all classwork may result in either of the following: an assignment to special reading classes within the school or a recommendation for discharge from the Navy. The recruit, however, may be returned to duty in a new company. If the recruit is reading at or above the fifth-grade level at the end of the third week, he is eligible to continue the final two weeks of his training in the school. During this time, he is taught naval terminology by means of reading assignments, lectures, and movies. Upon completion of the entire remedial reading program, he is assigned to a new company to complete his recruit training.

The purpose of this study, therefore, was to identify those recruit characteristics which were related to reading improvement and to evaluate the effectiveness of the academic remedial program in helping problems readers to improve their reading abilities.

Method

Subjects. The sample for this study consisted of 1518 recruits who attended ART from April, 1967 to September, 1972. Of the total sample, 1323 had scores for both initial and final reading levels. For these men, 1204 showed a gain in reading improvement whereas 119 recruits suffered a reading loss. The mean age was 19.23 and the mean educational level attained was 10.92.

Data collected. Recruit information collected for this study included: 1) present age, 2) years of education completed, 3) Armed Forces Qualification Test scores (AFQT), 4) General Classification Test score (GCT), 5) Arithmetic Reasoning Test (ARI),

6) Mechanical Aptitude Test score (MECH), 7) total score for the Recruit Temperament Survey (RTS), 8) initial reading level based on the Gates-MacGinitie Reading Test, 9) final reading level based on the Gates-MacGinitie Reading Test, and responses to the following questions from the RTS:

- a) Have you ever been in jail, reform school or detention home?
- b) Have you ever been charged with or suspected of a felony or a crime?
- c) Have you ever been expelled or suspended from school more than once?
- d) Have you ever been a patient in a mental hospital?
- e) Do you think you are mentally ill?
- f) Have you ever tried to commit suicide?

Recruit Temperament Survey (RTS). This inventory, which consists of 115 "yes-no" personal history statements, was developed by Waite and Barnes (1968) for the psychiatric screening of all recruits at the training centers in San Diego and Great Lakes. Responses which indicated the presence of a personal problem or an adjustment difficulty were scored as 1, the absence of the same was scored as 0. To obtain a total RTS score, all of the "1" responses were summed. The lower the total RTS score, the better the chances of effective performance. It should be noted, however, that the RTS has not been operationally implemented as a predictor of successful completion of a man's first tour of duty.

Gates-MacGinitie Reading Test. This instrument was administered to all recruits who were sent to ART for evaluation after failing to pass the initial academic test during recruit training. Final reading level scores were obtained after administering the test at the end of the third week of ART. Two scales were used from the test, the vocabulary and comprehension subtests. Scores for these two subtests were converted into reading levels expected of school children.

Criterion. The criterion for this study was the difference between final and initial reading level scores. Criterion values ranged from no reading improvement to 8.20 years of reading gain.

Results

Characteristics of Recruits at ART

Means and standard deviations were calculated for the thirteen recruit characteristics as well as for the number of days spent at ART and both initial and final reading level scores. Those thirteen variables included: age, education, AFQT, GCT, ARI, MECH, RTS, and responses to the six RTS items. Table I presents the mean values for all of the variables for various levels of reading change.

(Insert Table I about here.)

Correlates of Reading Improvement and Reading Loss

For the 1323 recruits who had initial and final reading scores, Pearsonian product-moment correlation coefficients were computed for the thirteen recruit characteristics with the values for reading improvement and reading loss. Five variables were significantly correlated ($r=.063$ for $p < .05$) with reading improvement and included: age ($-.080$), AFQT (.185), GCT (.140), ARI (.173), and responding positively (.063) to the question: Have you ever tried to commit suicide? These results indicated that higher scores for AFQT, GCT, ARI, as well as being younger and stating that one had tried to commit suicide, were related to higher levels of reading improvement. For those men who experienced a loss in reading ability, the statement of having been jailed or in a detention home was the only variable significantly related to reading loss. None of the other correlations attained the level of statistical significance for this subsample of 119 men.

Prediction of Reading Improvement

After eliminating those men who decreased in reading ability, the sample of 1204 was divided into validation and cross-validation subsamples. Division into either group was based upon criterion values; an equal number of recruits for each of the values was randomly placed in each of the two subsamples. For example, in dividing the sample on the basis of 1.5 to 1.99 years of reading improvement,

Holberg, et al

65 men were randomly placed in each of the subsamples. The thirteen variables were entered into the multiple regression analysis for the validation sample to determine those variables which significantly contributed to the best predictive equation. The equation of four variables resulted in a multiple R of .289. When this equation consisting of the values for AFQT, GCT, ARI, and MECH was applied to the cross-validation sample, the cross-validity was .262. These results indicated that higher scores for AFQT, GCT, ARI, and lower scores for MECH were effective predictors of reading improvement.

Discussion

The results of this study indicated that the cognitive scores of AFQT, GCT, ARI, and MECH were predictive of reading improvement. These significant predictors supported the findings of other researchers (Safer and Allen, 1973; Bluestein, 1967) who have reported that intelligence was related to reading improvement. Even though higher scores for AFQT, GCT, and ARI were related to higher levels of reading improvement, it should be noted that these mean cognitive scores were below the mean scores for the general recruit population. While the mean scores for GCT have ranged from 53.4 to 56.8 and mean AFQT scores have varied from 52.8 to 66.5 for Navy recruits during the 1967 to 1972 time frame, the mean scores for this sample were 32.3 for GCT and 19.4 for AFQT. Another variable which distinguished this sample from other recruits was that of the RTS. The remedial readers in this sample reported many more adjustment and personal problems, as indicated by a mean total RTS of 36.1, when compared with other recruits who had total mean RTS scores within a range from 18.9 to 29.1 for the same time period. This greater incidence of adjustment difficulties for the remedial readers suggested a similarity to the findings of Thompson (1966) and Hunt and Wittson (1951).

These results, on the other hand, do not support the findings of Carter and McGinnis (1970) who have suggested that reading improvement was difficult to attain

for individuals in grades nine to twelve. Although the mean reading improvement for this sample was 1.11 years for the six years of ART's operation, many recruits gained much more. This mean gain was phenomenal when a good gain was considered to be two months for each month in a remedial program (Deighton, 1971). The mean number of days spent at ART was 38.4 for all recruits; however, only the first three to four weeks were spent in the remedial reading program whereas the last two weeks were dedicated to the learning of naval terminology and procedures. The recruits who improved the greatest were in the program for an average of 35.7 days and for those men who suffered a reading loss, an average of 37.7 days was spent in the school.

These results suggest, therefore, that the reading program at ART is quite effective in helping problem readers to improve their reading abilities. The personnel and atmosphere within the school have probably contributed a great deal to the achievement attained by these recruits. The instructors and the officer-in-charge all seem to be very dedicated. Class size ranges from eight to twenty and the teacher-pupil ratio is between four and ten pupils per instructor. Individual attention, therefore, is assured for each student. Teaching machines or other costly devices are not used in the program; most of the teaching aids have been designed and constructed by the instructors. Even though the school is effective in producing reading gains, another aspect of an evaluation of ART will be based upon the subsequent performance of these men in the fleet. With this purpose in mind, a follow-up study of the men in this sample, as well as a sample of men matched on AFQT who did not attend ART, is currently being conducted to determine the overall effectiveness of these men throughout their tours of duty.

References

- Bluestein, V. W. Factors related to an predictive of Improvement in reading. Psychology in the Schools, 1967, 4, 272-276.
- Carter, H. L. and McGinnis, D. J. Diagnosis and Treatment of the Disabled Reader. London: The Macmillan Company, 1970.
- Deighton, L. C. The Encyclopedia of Education. New York: The Macmillan Company and the Free Press, 1971.
- Gillingham, A. In Cordero, I., Study of Reading Disorders in Relation to Poverty and Crime. Santa Barbara: Work Training Program, Inc., 1972.
- Hunt, W. A. and Wittson, C. L. The neuropsychiatric implications of illiteracy. U. S. Armed Forces Medical Journal, 1951, 2(3), 365-269.
- Hunter, E. J. and Lewis, H. M. The dyslexic child-two years later. Journal of Psychology, 1973, 83, 163-170.
- Pearlman, E. and Pearlman, R. The effect of remedial reading training in a private clinic. Academic Therapy, 1970, 5(4), 298-304.
- Safer, D. J. and Allen, R. P. Factors associated with improvement in severe reading disability. Psychology in the Schools, 1973, 10(1), 110-118.
- Thompson L. J. Reading Disability, Developmental Dyslexia. Springfield, Illinois: Charles C. Thomas, 1967.
- Waite, R. R. and Barnes, E. H. Predicting success or failure in the Navy, a longitudinal study. Unpublished manuscript, 1968.

Abstract

From April, 1967 to September, 1972, 1518 recruits were assigned to the Academic Remedial Training Division (ART) at the Naval Training Center, San Diego after having failed to pass the initial recruit academic test because of a reading disability. Before being assigned to ART and at the end of the three weeks of reading classes, the recruits were given a reading test to determine their initial and final reading level scores. Of those men who had both initial and final reading level scores, 1204 improved their reading skills ($\bar{X} = 1.11$ years) whereas 119 recruits suffered a loss in reading abilities. Biographical information and scores for cognitive measures were correlated with reading improvement and reading loss. The results of these correlations indicated that higher scores for AFQT, GCT, and ARI, as well as being younger and stating that one had attempted suicide, were related to higher levels of reading improvement. For those men who experienced a loss in reading ability, the statement of having been jailed or in a detention home was the only variable significantly related to reading loss. The sample of 1204 who experienced a reading gain was divided into validation and cross-validation subsamples. A multiple regression analysis was computed on the validation sample and indicated that the four variables of AFQT, GCT, ARI, and MECH resulted in a multiple R of .289. When the base-score equation was applied to the cross-validation sample, the cross-validity was .262. The results of this study indicated that the cognitive scores of AFQT, GCT, ARI, and MECH were predictive of reading improvement. In addition, the reading program at ART is quite effective in helping problem readers to improve their reading abilities.

Footnote

This study was proposed by Captain Allen McMichael, on the Staff of the Chief of Naval Training, Naval Air Station, Pensacola, Florida 32508. The opinions expressed are those of the authors and are not to be construed as necessarily reflecting the official policy of the naval service.

BEST AVAILABLE COPY

Table 1

Mean Recruit Characteristics for Years of Reading

Loss and Improvement

Variable	Loss and Improvement				Gain 0-1.99 N=684 \bar{X}	Gain 1.0-1.99 N=356 \bar{X}	Gain 2.00-2.99 N=107 \bar{X}	Gain 3.00-3.99 N=50 \bar{X}	Gain 4.00-8.20 N=27 \bar{X}
	Loss +0 N=119 \bar{X}	Loss 0-1.99 N=684 \bar{X}	Gain 0-1.99 N=356 \bar{X}	Gain 1.0-1.99 N=356 \bar{X}					
Present age	19.25	19.32	19.18	19.01	19.17	18.63			
Years of education	10.45	10.90	10.99	11.22	11.33	10.82			
AFQT	17.22	18.73	19.70	21.59	24.77	29.56			
GCT	32.34	31.94	32.32	31.90	33.63	38.96			
ARI	37.61	38.11	38.65	39.37	40.15	42.86			
MECH	43.69	43.20	43.30	42.02	42.65	42.95			
RTS	37.98	36.39	35.14	35.78	34.89	38.77			
Having been jailed	00.14	00.17	00.20	00.18	00.08	00.26			
Charged with a crime	00.12	00.11	00.13	00.10	00.04	00.09			
Mental hospitalization	00.02	00.01	00.02	00.01	00.04	00.00			
Thinks one is mentally ill	00.01	00.03	00.03	00.04	00.08	00.04			
Attempted suicide	00.01	00.03	00.03	00.05	00.04	00.09			
Expelled or suspended	00.14	00.18	00.17	00.17	00.19	00.32			
Days in ART	37.74	38.55	38.53	38.88	38.45	35.74			
Initial reading level	03.71	03.68	03.91	04.08	03.97	03.57			
Final reading level	03.34	04.17	05.29	06.45	07.38	09.38			

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER 73-60	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Characteristics of Naval Recruits Related to Reading Improvement		5. TYPE OF REPORT & PERIOD COVERED
6. AUTHOR(s) Anne/Hoiberg, C. J./Hysham, Newell H./Berry Michael Foster		6. PERFORMING ORG. REPORT NUMBER
7. AUTHORING OR PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Medical Research & Development Command Bethesda, MD 20014		8. CONTRACT OR GRANT NUMBER(s) F51524 MF51524002
9. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Bureau of Medicine & Surgery Department of the Navy Washington, DC 20372		10. SECURITY CLASS. (of this report) UNCLASSIFIED
11. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		12. SECURITY CLASS. (of this report) UNCLASSIFIED
13. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		14. DECLASSIFICATION/DOWNGRADING SCHEDULE
15. SUPPLEMENTARY NOTES		
16. KEY WORDS (Continue on reverse side if necessary and identify by block number) Academic Remedial Training Division Reading improvement Reading loss Cognitive measures		
17. ABSTRACT (Continue on reverse side if necessary and identify by block number) From April 1967 to September 1972, 1518 recruits were assigned to the Academic Remedial Training Division (ART) at the Naval Training Center, San Diego, after having failed to pass the initial recruit academic test because of a reading disability. Before being assigned to ART and at the end of the three weeks of reading classes, the recruits were given a reading test to determine their initial and final reading level scores. Of those men who had both initial and final reading level scores, 1204 improved their reading skills (\bar{x} = 1.11 years) whereas 119 recruits suffered a loss in reading abilities. Biographical information and		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE
S/N 0102-LF-014-6601

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

bpg

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

scores for cognitive measures were correlated with reading improvement and reading loss. The results of these correlations indicated that higher scores for AFQT, GCT, and ARI, as well as being younger and stating that one had attempted suicide, were related to higher levels of reading improvement. For those men who experienced a loss in reading ability, the statement of having been jailed or in a detention home was the only variable significantly related to reading loss. The sample of 1204 who experienced a reading gain was divided into validation and cross-validation subsamples. A multiple regression analysis was computed on the validation sample and indicated that the four variables of AFQT, GCT, ARI, and MECH resulted in a multiple R of .289. When the base-score equation was applied to the cross-validation sample, the cross-validity was .262. The results of this study indicated that the cognitive scores of AFQT, GCT, ARI, and MECH were predictive of reading improvement. In addition, the reading program at ART is quite effective in helping problem readers to improve their reading abilities.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)